Remarks

Claims 1-14, as amended, are pending in this application. In an Office Action dated May 10, 2002, the Examiner rejected claim 2 under 35 U.S.C. § 112, second paragraph, as having a term cited using the article "the" without an antecedent basis. This defect has been corrected. Applicant notes that this amendment does not in any manner affect the scope of claim 2.

The Examiner objected to claim 8 because of an informality. Claim 8 has been amended to correct the informality. Applicant notes that this amendment does not in any manner affect the scope of claim 8.

The Examiner rejected claims 1, 3-7 and 9-13 under the judicially created doctrine of obviousness-type double patenting over claims 1-9 of U.S. Patent No. 6,178,179. A terminal disclaimer has been filled together with this paper.

The Examiner rejected claims 1, 3, 4, 7, 9, 10, 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,905,781 to McHale *et al.* (McHale) in view of U.S. Patent No. 4,766,606 to Bardutz *et al.* (Bardutz) and U.S. Patent No. 6,219,387 to Wu (Wu). The Examiner rejected claims 2, 5, 6, 8, 11 and 12 under 35 U.S.C. § 103(a) over McHale, Bardutz, Wu and in further view of U.S. Patent No. 6,084,881 to Fosmark *et al.* (Fosmark). Applicant respectfully disagrees with the Examiner's § 103 rejections.

Independent claim 1 provides a system for distributing digital subscriber line (XDSL) signals to end users over a telephone wiring plant. A central office receives video signals from a video source. The central office includes a first XDSL transmission unit for transmitting the received video signals on twisted pair copper cable along with other telephony and digital data signals and for receiving data signals from end users. At least one end user location has a second XDSL transmission unit for receiving video signals from twisted pair copper cable and for transmitting data signals to the central office. A regenerator is connected to twisted pair copper cable and located a predetermined distance from the central office. The regenerator includes a receiver for receiving XDSL signals transmitted on twisted pair copper cable from either the central office or the end user. A decoder decodes the payload of a received XDSL signal into base data. An encoder repackages and encodes the base data into a desired protocol format. A line driver retransmits the encoded signal onto the twisted pair copper cable for distribution to an original destination. The predetermined distance for the

location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Claims 2-6 depend from claim 1.

Independent claim 7 provides a method for distributing digital subscriber line (XDSL) signals to end users over a telephone wiring plant. Video signals from a video source are received at a central office. The received video signals are transmitted on a twisted pair copper cable along with other telephony and digital data signals as an XDSL type signal to a terminal located at an end user site. Data signals are received on the twisted pair copper cable at the central office from an end user terminal. A signal regenerator unit is coupled to the twisted pair copper cable at a distance from the central office corresponding to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Transmitted XDSL signals are received at the regenerator and decoded into base data. The base data is repackaged and encoded into an XDSL signal having a desired protocol format. The XDSL signal is retransmitted to the end user terminal. Claims 8-12 depend from claim 7.

Independent claim 13 provides a regenerator for use in a digital subscriber line (XDSL) signal type signal distribution system. The distribution system includes a central office for transmitting video signals on a twisted pair copper cable along with other telephony and digital data signals to at least one end user location. The regenerator includes a receiver for receiving XDSL signals transmitted on the twisted pair copper cable from either the central office or the end user. A decoder decodes the payload of a received XDSL signal into base data. An encoder repackages and encodes the base data into a desired protocol format. A line driver for retransmits the encoded signal onto the twisted pair copper cable for distribution to an original destination. A predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Claim 14 depends from claim 13.

The Examiner has rejected independent claims 1, 7 and 13 as being obvious based on McHale, Bardutz and Wu. According to M.P.E.P. § 2142, three criteria must be met for the Examiner to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in McHale, Bardutz, Wu or in knowledge generally available

to one of ordinary skill in the art, to modify McHale. Second, there must be a reasonable expectation that this modification will succeed. Finally, either McHale, Bardutz or Wu must teach or suggest all claim limitations.

Without addressing any motivation to combine, no combination of McHale, Bardutz and Wu teach each of Applicant's claim limitations. In addition, there is no reasonable expectation that the Examiner's combination of Bardutz into McHale or Wu will succeed.

The Examiner suggests that McHale teaches the basic structure of a central office with XDSL capabilities communicating with end users. The Examiner admits that "McHale does not disclose a regenerator which disposes between the central office and the end user." (Pg. 4.) To make up for this flaw, the Examiner first provides Wu, as follows:

> In the same field of endeavor, Wu discloses a repeater which disposes between the central office and the end user for boosting the signal if the distance between the central office and end user is greater than a predetermined distance (See Fig 1 and col. 4, lines 25-60) ...

The Examiner is misstating whatever is disclosed in Wu.

Wu's Figure 1 is a block diagram showing an Internet service provider (ISP), central office (CO) and user environment (H). No regenerator of any kind is shown. The only mention of anything similar to Applicant's regenerator in the passage cited by the Examiner is at column 4, lines 55-60, as follows:

> Alternatively, if user environment H is more than this specified distance [18,000 feet] from central office CO, one or more signal repeaters (not shown) may be included within twisted pair wire facility TWP to boost the signals along their respective paths, particularly from central office CO to user environment H.

This does not teach *anything* about how to make *any* repeater or regenerator, let alone Applicant's regenerator. Further, Wu neither teaches nor suggests locating a regenerator at a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality.

Next, the Examiner proposes Bardutz, stating the following at pages 4-5:

> Bardutz discloses (Col 2, lines 45 to col. 4, lines 14) a repeater "regenerator" (Fig 1, Ref Rep 1) which disposes between the central office (Fig 1, Ref office terminal), includes a receiver for receiving a signal (col. 2, lines 51, coupling means), a decoder (col. 2, lines 55-60, data recovery means) for decoding the payload of a received signal into a base data, a encoder (Col. 2,

> lines 60-65) for encoding and repacking the base data into a desired protocol format and a line driver (Col. 2, lines 52-53, the regenerated signals is recoupled to the line) for retransmitting the encoded signals to the end user wherein the repeater is disposed at a predetermined distance where the SNR of the signal is reached to a threshold of minimum acceptable signal quality (it is implicitly).

Once again, the Examiner is misstating the reference.

First, Bardutz provides a repeater for multiplexing four telephone signals. Bardutz has nothing whatsoever to do with XDSL type signals.

Second, there is no indication that Bardutz's "coupling means" is Applicant's XDSL receiver. As illustrated in Figure 3a, "an electronic circuit schematic diagram of the line coupling sub-section of the repeater transmitter subsection," Bardutz's coupling means is a transformer, which will not work as an XDSL receiver.

Third, the Examiner can find no element in Bardutz which decodes the payload of a received XDSL signal into base data. Bardutz deals with analog telephone signals, and not data of any kind.

Fourth, the Examiner can find no element in Bardutz which repackages and encodes the base data into a desired protocol format. Again, Bardutz deals with telephone signals which require no protocol format of any kind.

Fifth, the Examiner indicates that Applicant's location of a regenerator at a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality is somehow implied by Bardutz. This is not appropriate. The Examiner must show how Bardutz either teaches or suggests Applicant's claim limitations. Further, there is no implication in Bardutz for locating a repeater anywhere.

In addition to failing to find a teaching of each of Applicant's claim elements, there is no reason to believe that the Examiner's proposed construction will succeed. Inserting Bardutz's telephonic repeater into either McHale's or Wu's system will cause the system to become inoperative – no signal will reach the user.

The Examiner has failed to establish a *prima facie* case of obviousness with regards to independent claims 1, 7 and 13. Since each remaining claim depends from one of these claims, the dependent claims are also patentable.

Conclusion

Claims 1-14, as amended, are pending in this application. The case is in appropriate condition for allowance. Accordingly, such action is respectfully requested. Fees in addition to those provided with this amendment may be charged to Deposit Account 21-0456 as specified in the Application Transmittal.

The Examiner is invited to telephone the undersigned to discuss any aspect of this case.

Respectfully submitted,

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Attachment

VERSION WITH MARKINGS TO SHOW CHANGES MADE

2. (Twice Amended) The system of claim 1 wherein the central office transmits XDSL signal using an asynchronous transfer mode (ATM) protocol, and the regenerator encoder is arranged to selectively repackage the base data into either the ATM protocol format or a direct transmission protocol format depending on the protocol requirements of the original destination [original terminal].

8. (Amended) The method of claim 7 further comprising transmitting XDSL signals from the central office transmits using an asynchronous transfer mode (ATM) protocol, and selectively repackaging the base data into either the ATM protocol format or a direct transmission protocol format depending on the protocol requirements of the destination original terminal.